REMARKS

Claims 1-34 remain pending.

In the Office Action, the Examiner objected to the disclosure; objected to claims 20-23; rejected claims 1-5 and 19-23 under 35 U.S.C. § 103(a) as being unpatentable over Devanagundy et al. (U.S. Patent No. 6,002,737) in view of Cave '808 (U.S. Patent No. 6,232,808); rejected claims 6-9, 24, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Cave in view of Short et al. (U.S. Patent No. 5,708,814), and further in view of Devanagundy et al.; rejected claims 10 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Cave '808 in view of Short et al. and further in view of Devanagundy et al., and still further in view of Cave '524 (U.S. Patent No. 6,314,524); rejected claims 11, 12, 27, and 28 under 35 U.S.C. § 103(a) as being unpatentable over Devanagundy et al. in view of Cave '808[1]; rejected claims 13, 14, 29, and 30 under 35 U.S.C. § 103(a) as being unpatentable over Devanagundy et al. in view of Cave '808, and further in view of Cave '524; rejected claims 15, 16, 31, and 32 under 35 U.S.C. § 103(a) as being unpatentable over Basso et al. (U.S. Patent No. 5,491,815) in view of Cave '808, and further in view of Devanagundy et al.; and rejected claims 17, 18, 33, and 34 under 35 U.S.C. § 103(a) as being unpatentable over Basso et al. in view of Cave '808, and further in view of Devanagundy et al., and still further in view of Cave '524.

Applicants initially note from the Office Action Summary that the drawings filed 13 April 2001 are either accepted or objected to, but which one is uncertain as neither box is checked. In the absence of a definite indication, Applicants assume the drawings are accepted.

Applicants respectfully traverse the objection to the disclosure. The Office Action requested that Applicants add a "Summary of the Invention" description to the application. Applicants note, however, that neither the M.P.E.P. nor 37 C.F.R. §1.73 requires the presence of a "Summary of the Invention." 37 C.F.R. §1.73 only states that a Summary of the Invention "should" be included. It does not state that a Summary "must" or "shall" be present in an application. Accordingly, Applicants have elected not to include a "Summary of the Invention"

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[1] This appears to be the same ground of rejection as that for claims 1-5 and 19-23.

as this is within the discretion and right of the Applicants. Applicants respectfully decline the invitation to change this election, and the objection should be withdrawn.

The amendments to claims 20-23 obviates the objection thereto.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143.

Claims 1-5 and 19-23:

Applicants respectfully traverse the § 103(a) rejection of claims 1-5 and 19-23 over Devanagundy et al. in view of Cave '808. Independent claims 1 and 19 require a method and article of manufacture including, *inter alia*, "determin[ing] an expiration time corresponding to each duration; and select[ing] the expiration time that is first to occur to provide a selected expiration time." The combination of Devanagundy et al. and Cave '808, even if it were proper, fails to teach or suggest the claimed method and article of manufacture.

Devanagundy et al. does not teach or suggest at least the above-quoted portions of claims 1 and 19. Page 3 of the Office Action admits that Devanagundy et al. does not teach or suggest "selecting the expiration time that is first to occur . . ." Page 3 of the Office Action, however, alleges that the "deterring" element is taught or suggested by col. 5, lines 54-59, and col. 7, lines 36-40 of Devanagundy et al. The cited portion of col. 5, however, only teaches that registers 352 contain time-out values that "indicate[] the number of counter clock cycles in an associated time-out period." The cited portion of col. 7 teaches that one of these time-out values (i.e., the one output by multiplexer 356) may be added to a start count by adder 430 to generate a count value.

Assuming, for the sake of argument, that the count value generated by adder corresponds to the claimed "expiration time," the cited portions of Devanagundy et al. do not teach or suggest "determining an expiration time corresponding to *each* duration," (emphasis added) as set forth in claims 1 and 19. Adder 430 in Fig. 4 of Devanagundy et al. can only generate a count value for the one time-out value selected by multiplexer 356, and thus, Devanagundy et al. fails to

teach or suggest determining expiration times corresponding to each duration as claimed. Thus, Devanagundy et al. fails to teach or suggest either of the "determining" or the "selecting" elements of claims 1 and 19.

Cave '808 also does not teach or suggest at least the above-quoted portions of claims 1 and 19. Page 3 of the Office Action alleges that col. 7, lines 1-17, teaches "receiving a set of expiration times." This is not what is claimed, and it is also not what Cave '808 teaches. Col. 7, lines 1-6, provide:

> Each timing value TV_1 through TV_n represents an interval that is desired to be timed within the system. The actual numeric value of each timing value TV_1 through TV_n is the number of raw clock ticks of clock 201 in FIG. 2A elapsing in the corresponding interval to be timed.

This, the timing values (TV) disclosed by Cave '808 are durations (i.e., numbers of clock ticks), and not expiration times as alleged. Claims 1 and 19, however, require "determin[ing] an expiration time corresponding to each duration." Col. 7, lines 10-30, of Cave '808 merely teaches loading these durations TV into a register from lowest number (shortest duration) to highest number (longest duration). Cave '808 also teaches at line 24 of col. 7 that "[t]iming operations begin as clock register 202 counts upward."

Cave '808 neither teaches nor suggests determining expiration times corresponding to each duration as claimed. No calculations are performed on timing values TV_1 through TV_n to "determine an expiration time" corresponding to these values. Hence, Cave '808 fails to teach or suggests "determining an expiration time corresponding to each duration" as set forth in claims 1 and 19.

Because Cave '808 does not teach or suggest determining expiration times, it also does not teach or suggest "selecting the expiration time that is first to occur . . ." as claimed. At most, Cave '808 discloses ordering a set of durations in a stack, which does not meet either the "selecting" or the "expiration time" elements of claims 1 and 19. Thus, Cave '808 fails to teach or suggest either of the "determining" or the "selecting" elements of claims 1 and 19. A *prima facie* case of obviousness has not been established, at least because the combination of references fails to teach or suggest all elements of claims 1 and 19.

A *prima facie* case of obviousness also has not been established for claims 1 and 19, because no motivation or suggestion has been shown to combine <u>Devanagundy et al.</u> in view of <u>Cave '808</u>. Page 4 of the Office Action alleges that timing multiple events in a chronological manner is "only logical." Combining <u>Cave '808</u>,which teaches initializing a timing clock for multiple events (see Fig. 2C, clock register 202), with <u>Devanagundy et al.</u>, which teaches using a free-running counter for only one event (see Fig. 3, elements 310 and 356), would alter the principles of operation of at least <u>Devanagundy et al.</u> In other words, the single event timing of <u>Devanagundy et al.</u> teaches away from adding the multiple events of <u>Cave '808</u> (see M.P.E.P. § 2145(X)(D). A *prima facie* case of obviousness also has not been established for claims 1 and 19 for at least this additional reason.

Because a *prima facie* case of obviousness has not been established for claims 1 and 19, the § 103(a) rejections of claims 1 and 19 are improper and should be withdrawn. Claims 2-5 and 20-23 are allowable at least by virtue of their dependency from claims 1 and 19.

Claims 11-14 and 27-30:

Applicants respectfully traverse the § 103(a) rejection of claims 11-14 and 27-30 over <u>Devanagundy et al.</u> in view of <u>Cave '808</u>. Independent claims 11 and 27 require a method and article of manufacture including, *inter alia*, "determin[ing] a received time for each duration; and determin[ing] an expiration time corresponding to each duration to provide a set of expiration times, each expiration time being approximately equal to the corresponding received time plus the corresponding time duration." The combination of <u>Devanagundy et al.</u> and <u>Cave '808</u>, even if it were proper, fails to teach or suggest the claimed method and article of manufacture.

<u>Devanagundy et al.</u> does not teach or suggest at least the above-quoted portions of claims 11 and 27. <u>Devanagundy et al.</u> does not teach or suggest "determin[ing] an expiration time corresponding to each duration to provide a set of expiration times" for similar reasons to those given above with regard to claims 1 and 19. Though the count value generated by adder 430 arguably may correspond to an expiration time, only one such count is generated for any given timed event (see multiplexer 356 in Figs. 3 and 4). Thus, <u>Devanagundy et al.</u> does not teach or suggest determining an expiration time "corresponding to *each* duration" to provide "a *set of expiration times*" (emphasis added), as required by claims 11 and 27. Hence, <u>Devanagundy et al.</u>

does not teach or suggest the claimed "determining an expiration time . . ."

Nor does <u>Devanagundy et al.</u> teach or suggest "determin[ing] a received time for each duration." The Examiner reads the claimed durations on the time-out values in registers 352. <u>Devanagundy et al.</u>, however, teaches that these time-out values are written to registers at a common time, usually upon initialization (see col. 5, lines 55-59). On page 9 of the Office Action, register 320 is cited as allegedly corresponding to the claimed receive times. Though the start count register 320 may contain some time-related value, this value does not relate to when the time-out values in registers 352 were received. Hence, <u>Devanagundy et al.</u> does not teach or suggest determining a received time "for each duration" as required by claims 11 and 27. Thus, <u>Devanagundy et al.</u> fails to teach or suggest either of the "determining a received time" or the "determining an expiration time" elements of claims 11 and 27.

<u>Cave '808</u> also does not teach or suggest at least the above-quoted portions of claims 11 and 27. Pages 9 and 10 of the Office Action do not allege <u>Cave '808</u> teaches or suggests "determin[ing] a received time for each duration." Nor does <u>Cave '808</u> teach or suggest determining such received times.

<u>Cave '808</u> also fails to teach or suggest the claimed "determin[ing] an expiration time corresponding to each duration to provide a set of expiration times" for reasons similar to those given for claims 1 and 19 above. No operations are performed on the timing values TV_1 through TV_n to "determine an expiration time" corresponding to these values. Nor does <u>Cave '808</u> "provide a set of expiration times;" only the ordered TV durations are taught or suggested. Thus, <u>Cave '808</u> fails to teach or suggest either of the "determining a received time" or the "determining an expiration time" elements of claims 11 and 27. A *prima facie* case of obviousness has not been established, at least because the combination of references fails to teach or suggest all elements of claims 11 and 27.

A *prima facie* case of obviousness also has not been established for claims 11 and 27, because (as explained above with regard to claims 1 and 19) the single event timing of <u>Devanagundy et al.</u> teaches away from adding the multiple events of <u>Cave '808</u> (see M.P.E.P.

§ 2145(X)(D). Such modification would alter the principles of operation of <u>Devanagundy et al.</u>, <u>Cave '808</u>, or both. A *prima facie* case of obviousness also has not been established for claims 11 and 27 for at least this additional reason.

Because a *prima facie* case of obviousness has not been established for claims 11 and 27, the § 103(a) rejections of claims 11 and 27 are improper and should be withdrawn. Claims 12 and 28 are allowable at least by virtue of their dependency from claims 11 and 27.

Regarding the rejection of claims 13, 14, 29, and 30, the addition of <u>Cave '524</u> fails to cure the deficiencies in <u>Devanagundy et al.</u> and <u>Cave '808</u> noted above with respect to claims 11 and 27. <u>Cave '524</u> also fails to teach or suggest either of the "determining a received time" or the "determining an expiration time" elements of claims 13, 14, 29, and 30, and its addition cannot establish a *prima facie* case of obviousness for these claims.

Claims 6-10 and 24-26:

Applicants respectfully traverse the § 103(a) rejection of claims 6-10 and 24-26 over <u>Cave '808</u> in view of <u>Short et al.</u> and <u>Devanagundy et al.</u> Independent claims 6 and 24 require a method and article of manufacture including, *inter alia,* "determin[ing] a first expiration time and a second expiration time; and if the first expiration time is not approximately equal to the second expiration time, setting a signal send time approximately equal to the selected one of the first expiration time and the second expiration time, and if the first expiration time is approximately equal to the second expiration time, setting a signal send time approximately equal to the first and second expiration time." The combination of <u>Cave '808</u> in view of <u>Short et al.</u> and <u>Devanagundy et al.</u>, even if it were proper, fails to teach or suggest the claimed method and article of manufacture.

<u>Cave '808</u> fails to teach or suggest the claimed "determin[ing] a first expiration time and a second expiration time" for reasons similar to those given above. Col. 7, lines 1-5, of <u>Cave '808</u> teaches only that the timing values TV represent "an interval that is desired to be timed." Thus, these TV values are durations, and not times as claimed. Further, this portion of <u>Cave '808</u> teaches that the TV values are a "number of raw clock ticks of clock 201," and thus they do not reasonably correspond to the claimed "expiration time." The plain meaning of an expiration time is a time that something is to expire, and a number of clock ticks does not specify such a

time. Thus, <u>Cave '808</u> fails to teach or suggest at least the "determining a first expiration time and a second expiration time" element of claims 6 and 24.

Nor does <u>Devanagundy et al.</u> teach or suggest determining first and second expiration times for the reasons given above, and <u>Short et al.</u> is not alleged to teach or suggest determining first and second expiration times.

<u>Short et al.</u> fails to teach or suggest at least the "if the first expiration time is not approximately equal to the second expiration time, setting a signal send time . . ." element of claims 6 and 24. Page 5 of the Office Action alleges that this is taught or suggested in col. 3, lines 58-64 of <u>Short et al.</u> This cited portion of <u>Short et al.</u> provides:

> The limit value sets a maximum number of pending interrupt events for the controlled peripheral device that the interrupt controller will allow to accumulate before asserting an IRQ to the CPU 24. The delay time value sets a maximum time interval that the interrupt controller will delay from the earliest pending interrupt event of the controlled peripheral device before asserting an IRQ to the CPU 24.

This section of <u>Short et al.</u> discloses only a maximum number of interrupts and pendency before issuing an ICQ, and does not teach or suggest the above-quoted claim element. The Examiner attempts to cure this deficiency of <u>Short et al.</u> in footnote 4 on page 5 of the Office Action.

A conclusory statement in a footnote, however, is no substitute for a teaching or suggestion in a reference. If <u>Short et al.</u> indeed teaches or suggests "if the first expiration time is not approximately equal to the second expiration time, setting a signal send time approximately equal to the selected one of the first expiration time and the second expiration time, and if the first expiration time is approximately equal to the second expiration time, setting a signal send time approximately equal to the first and second expiration time," as claimed, Applicants respectfully request that the Examiner show where such is taught in the reference or explain why such is inherent in the reference. Neither having been done in the Office Action, the rejection of claims 6 and 24 is improper and should be withdrawn. A *prima facie* case of obviousness has not been established, at least because the combination of references fails to teach or suggest all elements of claims 6 and 24.

Regarding the rejection of claims 10 and 26, the addition of <u>Cave '524</u> fails to cure the deficiencies in <u>Devanagundy et al.</u> and <u>Cave '808</u> noted above with respect to claims 6 and 24. <u>Cave '524</u> also fails to teach or suggest either of the "determining a first expiration time and a second expiration time" or the "if the first expiration time is not approximately equal . . ." elements of claims 10 and 26, and its addition cannot establish a *prima facie* case of obviousness for these claims.

Claims 15-18 and 31-34:

Applicants respectfully traverse the § 103(a) rejection of claims 15-18 and 31-34 over <u>Basso et al.</u> in view of <u>Cave '808</u> and <u>Devanagundy et al.</u> Independent claims 15 and 31 require a method and article of manufacture including, *inter alia*, "select[ing] an expiration time in the set that will occur first, to provide a selected expiration time." The combination of <u>Basso et al.</u>, <u>Cave '808</u>, and <u>Devanagundy et al.</u>, even if it were proper, fails to teach or suggest the claimed method and article of manufacture.

<u>Cave '808</u> fails to teach or suggest the claimed "select[ing] an expiration time in the set that will occur first" for reasons similar to those given above. Col. 7, lines 1-5, of <u>Cave '808</u> teaches only that the timing values TV represent "an interval that is desired to be timed." Thus, these TV values are durations, and not expiration times as claimed. Further, this portion of <u>Cave '808</u> teaches that the TV values are a "number of raw clock ticks of clock 201," and thus they do not reasonably correspond to the claimed "expiration time." The plain meaning of an expiration time is a time that something is to expire, and a number of clock ticks does not specify such a time. Thus, <u>Cave '808</u> fails to teach or suggest at least the "elect[ing] an expiration time in the set that will occur first" element of claims 15 and 31. A *prima facie* case of obviousness has not been established, at least because the combination of references fails to teach or suggest all elements of claims 15 and 31.

A *prima facie* case of obviousness also has not been established for claims 15-18 and 31-34, because one skilled in the art would not have been motivated to combine the references as proposed. To obtain all of the elements in claim 15, the Examiner has added to <u>Basso et al.</u>:
1) <u>Cave '808</u> which introduces chronological ordering not contemplated by the sender-receiver communication scheme of <u>Basso et al.</u>; and 2) <u>Devanagundy et al.</u> which introduces a call back

at the end of a time period that is not contemplated by either Cave '808 or Basso et al. That the original references do not contemplate the added elements teaches away from adding both Cave '808 and Devanagundy et al. in the manner proposed. Cave '808 would alter the principle of operation of Basso et al., and so would Devanagundy et al. A *prima facie* case of obviousness has not been established for claims 15-18 and 31-34 for at least this additional reason.

Regarding the rejection of claims 17, 18, 33, and 34, the addition of Cave '524 fails to cure the deficiencies in Devanagundy et al. and Cave '808 noted above with respect to claims 15 and 31. Cave '524 also fails to teach or suggest either of the "select[ing] an expiration time in the set that will occur first" element of claims 17, 18, 33, and 34, and its addition cannot establish a *prima facie* case of obviousness for these claims.

Reconsideration and allowance of pending claims 1-34 is respectfully requested.

In the event that any outstanding matters remain in this application, Applicants request that the Examiner contact Alan Pedersen-Giles, attorney for Applicants, at the number below to discuss such matters.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0221 and please credit any excess fees to such deposit account.

Respectfully submitted,

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